G1808X, G1838X, G1848X
DEEP FAT FRYERS

INSTALLATION and SERVICING INSTRUCTIONS

These appliances must be installed and serviced by a competent person as stipulated by the Gas Safety (Installation & Use) Regulations.

IMPORTANT

The installer must ensure that the installation of the appliance is in conformity with these instructions and National Regulations in force at the time of installation. Particular attention MUST be paid to -

Gas Safety (Installation & Use) Regulations

Health And Safety At Work etc. Act

Local and National Building Regulations

Fire Precautions Act

Detailed recommendations are contained in Institute of Gas Engineers published documents :

IGE/ UP/ 1, IGE/ UP/ 2, BS6173 and BS5440

These units have been CE-marked on the basis of compliance with the Gas Appliance Directive, Gas Types and Pressures as stated on the Data Plate.

WARNING - TO PREVENT SHOCKS, ALL APPLIANCES WHETHER GAS OR ELECTRIC, MUST BE EARTHED

On completion of the installation, these instructions should be left with the Engineer-in-Charge for reference during servicing. Further to this, The Users Instructions should be handed over to the User, having had a demonstration of the operation and cleaning of the appliance.

IT IS MOST IMPORTANT THAT THESE INSTRUCTIONS BE CONSULTED BEFORE INSTALLING AND COMMISSIONING THIS APPLIANCE. FAILURE TO COMPLY WITH THE SPECIFIED PROCEDURES MAY RESULT IN DAMAGE OR THE NEED FOR A SERVICE CALL.

PREVENTATIVE MAINTENANCE CONTRACT

In order to obtain maximum performance from this unit we would recommend that a Maintenance Contract be arranged with **AFE SERVICELINE**. Visits may then be made at agreed intervals to carry out adjustments and repairs. A quotation will be given upon request to the contact numbers below.

Falcon Foodservice Equipment

HEAD OFFICE AND WORKS

PO Box 37, Foundry Loan, Larbert.
Stirlingshire. Scotland. FK5 4PL

AFE SERVICE CONTACT -

PHONE - 01438 363 000 FAX - 01438 369 900

R3782 Ref. 1

AGA FOODSERVICE EQUIPMENT

SECTION 1 - INSTALLATION

UNLESS OTHERWISE STATED, PARTS WHICH HAVE BEEN PROTECTED BY THE MANUFACTURER ARE NOT TO BE ADJUSTED BY THE INSTALLER

1.1 MODEL NUMBERS, NETT WEIGHTS and DIMENSIONS

MODEL	WIDTH mm	DEPTH mm	HEIGHT mm	WEIGHT kg	WEIGHT lbs
G1808X	300	850	870	64	141
G1838X	600	850	870	92	202
G1848X	600	850	870	116	225

The unit should be installed on a level, fireproof floor in a well lit, draught free position. A clear space of 150mm should be left between the rear and sides of the fryer and any combustible wall.

1.3 VENTILATION

Adequate ventilation, either natural or mechanical, must be provided to supply sufficient fresh air for combustion. This should allow easy removal of combustion products which may be harmful to health.

Recommendations for Ventilation of Catering Appliances are given in BS5440:2. Furthermore, to ensure sufficient room ventilation, guidance on the volume of air required to ventilate different types of catering equipment is provided in the table below. For multiple installations, the requirements for individual units require to be added together. Installation should be carried out in accordance with local and/or national regulations which apply at the time. A competent installer MUST be employed.

The flue discharges vertically from the rear of the unit at a height of 1200mm from floor level. A clear distance of 610mm must be left between the top edge of the flue and any overhanging object.

There must be no direct connection of the flue to the outside air or to a mehanical extraction system. Placing the unit below a ventilated canopy is the most suitable arrangement.

EQUIPMENT	Ventilation Rate Required m^3/ min	ft^3/min
Range, Unit Type	17	600
Pastry Oven	17	600
Fryer	26	900
Grill	17	600
Steak Grill	26	900
Boiling Pan	17	600
Steamer	17	600
Sterilizing Sink	14	500
Bains Marie	11	400
Tea/ Coffee Machine	8.5 - 14	300 - 500

1.4 GAS SUPPLY

The incoming service must be of sufficient size to supply full rate gas without excessive pressure drop. A gas meter is connected to the service pipe by the Gas Supplier. Any existing meter should be checked by the Gas Supplier to ensure that such a meter is of adequate capacity to pass the required rate of gas for the unit, in addition to any other gas equipment which has been installed.

The gas control unit has an in-built governor therefore an external device does not require to be fitted.

Installation pipework should be fitted in accordance with IGE/UP/2. Pipework should not be smaller than the fryer gas inlet connection. i.e. Rp$^1/_2$ ($^1/_2$" BSP).

An isolating cock must be located close to the unit to allow shutdown during an emergency or servicing. The installation should be checked for gas soundness and purged as specified in IGE/UP/1.

1.5 ELECTRICAL SUPPLY

Not applicable to these units.

1.6 WATER SUPPLY

Not applicable to these units.

1.7 TOTAL GAS RATES - NATURAL and PROPANE GAS

Model	kW	Btu/hr
G1808X	16.1	54,933
G1838X	32.5	110,890
G1848X	2 x 16.1	2 x 54,933

1.8 INJECTOR SIZES -

1.8.1 Natural Gas

Model	Pilot Burner	Main Burner
G1808X	NG No. 18	ø2.38mm
G1838X	NG No. 18	ø3.2mm
G1848X	NG No. 18	2 x ø2.38mm

1.8.2 Propane Gas

Model	Pilot Burner	Main Burner
G1808X	LP No. 11	ø1.57mm
G1838X	LP No. 11	ø2.15mm
G1848X	LP No. 11	2 x ø1.57mm

1.8.3 Cross-Lighting Burners

Natural Gas	Propane Gas
NG No. 26	LP No. 16

1.9 GAS PRESSURE ADJUSTMENT

	Natural Gas		Propane Gas	
Model	mbar	in. w.g.	mbar	in. w.g.
G1808X	15	6	34.5	13.8
G1838X	15	6	34.5	13.8
G1848X	15	6	34.5	13.8

A pressure test point is fitted on the burner manifold and the operating pressure is shown in the table above. On the G1848X model, the burner pressure should be set with both pans turned on.

An adjustable governor is included in the multifunctional control on Natural Gas models (see Figure 1).

1.10 BURNER ADJUSTMENTS

1.10.1 Pilot

An adjustment key is located on the multifunctional control to regulate the pilot flame (see Figure 1). Remove the pilot adjustment cap, adjust the pilot key to provide a flame, approximately $^3/_4$" long, projecting from each inverted channel of the pilot burner. (A flame larger than this will roar excessively.)

Replace the pilot adjustment cap.

Main Burner

No aeration adjustment is necessary however, the gas pressure should be set as per the value shown in Section 1.9.

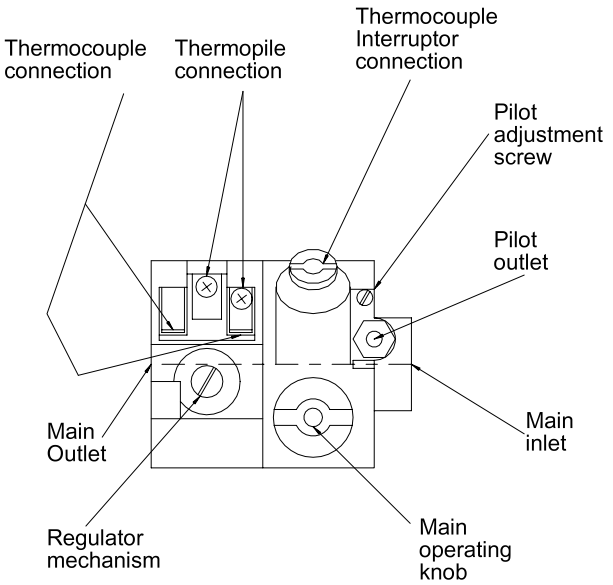

Figure 1

SECTION 2 - ASSEMBLY and COMMISSIONING

2.1 ASSEMBLY

The unit is packed as a complete assembly .

2.2 CONNECTION TO A GAS SUPPLY

The unit is supplied with a compression elbow fitting which terminates in an Rp$^1/_2$ thread for mains connection. The gas supply piping and appliance connection must be installed in accordance with the regulations listed on the front page of this document.

A gas isolating cock must be fitted to the supply in a position readily accessible to the operator.

2.3 CONNECTION TO AN ELECTRICAL SUPPLY

Not applicable to these units.

2.4 CONNECTION TO A WATER SUPPLY

Not applicable to these units.

2.5 PRE-COMMISSIONING CHECK

Prior to operation, ensure that all packing material has been removed from the unit.

2.5.1 Setting The Gas Pressure

a) It is necessary to check the gas pressure during commissioning. A suitable pressure gauge must be connected to the test point on the supply manifold.

b) Turn on the main gas valve at the supply.

c) Light the burners as detailed in the User Instructions. The supply pipes may contain air, therefore it may be necessary to repeat the lighting procedure.

d) Adjust the multifuncional control pressur governor to the relevent settiing as detailed in Section 1.9 of this document. The screw should be turned clockwise to increase the pressure and anti-clockwise to reduce it. Check again after 15 minutes of operation.

e) Disconnect pressure gauge from test point. Replace sealing screw and test for gas soundness.

2.6 INSTRUCTION TO USER

After installing and commissioning the fryer, hand the User Instructions to the operator or purchaser. Ensure that the details to light, turn off, use and clean are properly understood. The main gas isolating valve location should be made known to the user and the procedure for operation in event of an emergency should be demonstrated.

SECTION 3 - SERVICING and CONVERSION

Important

BEFORE ATTEMPTING ANY SERVICING, ENSURE THAT THE ISOLATING COCK IS TURNED OFF AND THAT IT CANNOT BE INADVERTENTLY TURNED BACK ON.

AFTER ANY SUCH MAINTENANCE TASK, CHECK THE APPLIANCE TO ENSURE CORRECT PERFORMANCE AND CARRY OUT ANY NECESSARY ADJUSTMENTS AS DETAILED IN SECTION 1.

After carrying out any servicing or exchange of gas carrying components -

ALWAYS CHECK FOR GAS SOUNDNESS!

3.1 GAS CONVERSION CHECK LIST

CHANGE MAIN INJECTORS

CHANGE PILOT INJECTORS

CHANGE MULTIFUNCTIONAL CONTROL

CHANGE DATA PLATE

CHANGE CROSS LIGHTING INJECTOR

3.2 REMOVAL OF CONTROL PANEL

Pull off the thermostat knob and undo the fixings.

3.3 BURNERS

The burners should be cleaned periodically to maintain maximum performance. Burners are best cleaned with a wire brush with blocked parts requiring to be cleared using a metal broach. Any material pushed into the burner should be shaken out via the air inlet.

3.3.1 Removal of Burner Assembly

Turn off the main gas supply to the unit. Remove the fixings which secure the pilot assembly to the main burner and drop the pilot assembly slightly. Disconnect the compression joint above the manifold. Remove the fixings which retain the burner assembly front cross strap to the side runners. Pull the burner assembly forward an inch (approx.) and drop slightly to clear the front cross strap. While supporting the weight of the burner assembly, push this back to clear the rear strap from the runners, lower and withdraw the assembly. Replace in reverse order.

3.3.2 Removal of Pilot Burner

Isolate the main gas supply to the unit. Disconnect the pilot supply pipe compression nut and remove the pipe from the pilot burner. Withdraw the injector. Undo the thermocouple retaining nut and remove the thermocouple from the pilot burner. Undo the thermopile retaining nut and withdraw the thermopile. Pull the HT lead from the spark electrode.

Undo the nuts which secure the pilot burner bracket to the RH main burner. Withdraw the pilot burner assembly. Replace in reverse order.

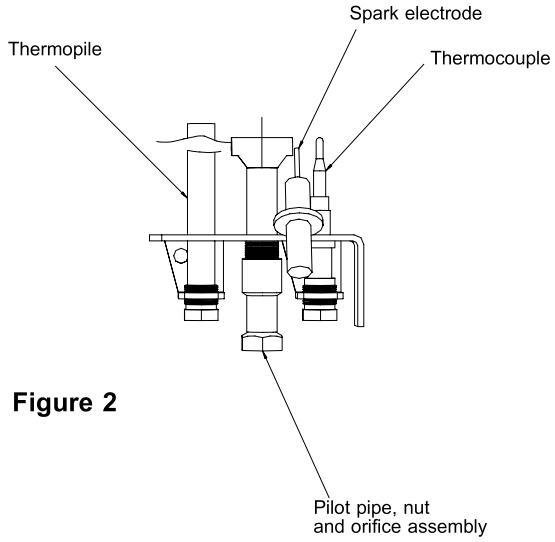

Figure 2

3.4 CLEANING THE INJECTORS

Injectors should be periodically cleaned using a wooden splinter or soft wire. Avoid the use of metal reamers as these may distort or increase the size of the orifice.

3.4.1 Removal of the Main Burner Injectors

Isolate the main gas supply.

Use a 10mm open-ended spanner to remove the injector.

3.4.2 Removal of the Pilot and Cross-Lighting Injectors

Isolate the main gas supply.

Undo the pilot supply pipe compression nut and remove the pipe from the pilot burner. Withdraw the injector. Replace in reverse order.

3.5 FLAME FAILURE THERMOCOUPLE

Undo the M10 nuts at the pilot assembly and valve body.

3.6 PIEZO IGNITER/SPARK ELECTRODE

The igniter is of the piezo spark type, a device which comprises the generator housing, lead and electrode. the electrode is mounted through the pilot burner bracket and the generator is secured to the control compartment side wall. The lead has a push on connection at either end.

3.6.1 Removal of Igniter Generator

Remove the igniter lead connection to the generator. Undo the fixings which secure the generator flange to the control compartment wall and remove the device. Replace in reverse order.

3.6.2 Removal of the Electrode

Remove the igniter lead connection from the electrode nut located below the pilot burner bracket. Tilt the electrode slightly to clear the pilot burner hood and withdraw upward from the pilot burner bracket. Replace in reverse order.

3.7 THERMOSTATS

The user thermostat is a Robertshaw RX model, snap action electric control with a centre stem adjustment of temperature up to 190°C.

The safety stat is an EGO model with interrupter with a maximum fixed setting of 230°C. This interrupts the thermocouple signal from the pilot and will subsequently shut down the gas supply should the user thermostat fail and cause the oil to overheat.

Note

Manual intervention is required to reset the control in event of a cut-out.

To Reset

Push the button at the control base when the oil temperature drops below 215°C.

3.7.1 Removal of Operating Thermostat

Isolate the main gas supply and drain the oil from the pan.

Remove the control knob from the user thermostat and undo the fixing at either end of the control panel. Pull the panel forward while easing the bottom edge upward slightly. Undo the two fixings alongside the user thermostat spindle and withdraw the thermostat. Follow the thermostat phial lead to the stuffing box in the pan front wall and undo the small compression nut which seals the lead in position. Remove the stuffing box nut and withdraw the thermostat phial. Undo the thermostat electrical connections prior to removal of the thermostat. Replace in reverse order.

3.7.2 Recalibration of User Thermostat

Remove the knob from the thermostat spindle taking care not to rotate it in either direction. This would change the setting. Steady the spindle and rotate the calibration screw clockwise to decrease and anti-clockwise to increase the temperature. The approx. effect of a quarter turn is 27°C. Replace the control knob and allow the unit to operate until the temperature has stabilised before making a final check.

3.7.3 Checking the User Thermostat Calibration

Using a reliable thermometer immersed 25mm below the oil surface at the pan centre, measure the oil temperature when a steady condition has been established.

3.7.4 Removal of Safety Thermostat

Isolate the gas supply and drain the oil from the pan. Undo the fixings which secure the safety stat to the bracket. Undo the fixing which retains the thermocouple capillary to the pan base and remove the packing. Withdraw the phial and undo the wires from the interrupter. Fit the replacement stat bracket and reposition parts in reverse order.

3.8 MULTIFUNCTIONAL GAS CONTROL

The unit is fitted with a Robertshaw 7000 BMVR control which incorporates cock, governor, valve and flame failure device.

3.8.1 Removal of the Multifunctional Control

Isolate the main gas supply.

Disconnect the thermocouple connection on the MFC and pull the thermocouple clear. Undo the thermopile connections and withdraw. Undo the main gas inlet and outlet connections to the MFC and withdraw the control. Replace in reverse order taking care when reconnecting the thermocouple. DO NOT overtighten as this may cause damage, hand tight plus a quarter turn is sufficient.

3.8.2 To Clean the Main Valve

Push in and turn the MFC control knob to the OFF position. Remove the MFC as detailed in Section 2.8.1. Undo the fixings from the control base and remove the bottom cover. Remove the diaphragm, spring and valve assembly by carefully lifting the edge all round. Clean the valve face with a fresh, soft, lint-free cloth or chamois. Replace the diaphragm ensuring that the diaphragm ear engages with the casting cut-out. Reposition the bottom cover and ensure that the spring locates on the rubber projection at the diaphragm centre. It should engage in the centre depression of the lower cover. Replace the fixings and tighten securely. Turn on the gas supply and with the main burner on, check around the bottom cover for leaks with a soap solution.

3.8.3 To Lubricate the Gas Cock Plug

Isolate the gas supply.

Turn the control knob to the ON position.

Remove the fixings at the actuator corners and remove the actuator and gasket.

Remove the four fixings through the top cover.

Carefully separate the top cover assembly from the control body. Take care not to damage the body gasket when removing the gasket and cock spring.

Note the key way position in the plug top before removal of the cock from the body. It may be necessary to rotate this slightly during removal. Remove old grease from the plug only, do not attempt to clean the cavity as old grease or foreign matter may have been pushed into the cavity. Lubricate the cock plug only with good quality grease which is suitable for use with aluminium gas cocks. DO NOT OVER LUBRICATE.

Replace the gas cock, rotating until the keyway is in the same position as it was upon removal.

Reposition the body gasket and spring. Ensure that the gasket holes locate over the raised boss around the fixing holes.

Replace the control body top cover assembly. Ensure that the cock spring enters the hub of the dial shaft and that the rubber safety pilot valve face clears the body casting edge. Bear down on the top cover when tightening the fixings.

Reposition the gasket and actuator. Position the actuator so that the indicator mark is near the knob. Securely tighten the corner fixings.

Replace the thermocouple, pilot tubing, bleen line connections. Re-establish the gas supply to the unit.

Check for gas leaks with the main burner on using a soap solution.

3.9 GOVERNOR

A governor is built in to the multifunctional control. Refer to Sections 1.9 and 3.8.

SECTION 4 - MILLI-VOLT SYSTEM CHECK

Before checking the operation of the millivolt system, the following operations should be performed and observations made;

1. Inspect the system for correctly routed wiring.
2. The thermostat leads and all wiring connections should be cleaned and tightened to eliminate all unnecessary resistance.
3. Clean and/or adjust the pilot for maximum flame impingement on the thermopile.

The millivolt system and components should be checked with an accurate meter which operates in the 0 - 1000mV range.

Conduct each check listed in the table below by connecting the leads of the meter to the indicated terminals.

All meter readings are closed circuit.

TEST A

COMPLETE MILLIVOLT SYSTEM CHECK

a) If the reading is above 100mV and the automatic valve still does not respond, replace the automatic valve operator.

b) If the closed circuit reading 'A' is below 100mV determine the cause of the low reading by following this procedure;

TEST B

THERMOPILE OUTPUT READING CHECK

If the minimum mV rating is not obtainable, re-adjust the pilot for maximum mV output. If this is still below the specified minimum, replace the thermopile.

TEST C

SYSTEM RESISTANCE CHECK

If the reading is more than is specified the system resistance is excessive and requires to be reduced. To correct this;

a) Clean and tighten the thermostat leads and connections.

b) Shorten the thermostat lead wires and/or replace with heavier gauge wire leads.

c) Cycle the thermostat by turning the knob back and forth rapidly to clean the contacts.

TEST D

PILOT DROPOUT CHECK

a) Hold the MFC dial pushed inward in the pilot position and light the pilot. Keep the knob pushed in until the mV output becomes stable at maximum level. Extinguish the pilot and observe the meter.

b) Pilot magnet dropout should occur between 120 and 30mV. If dropout occurs outwith these limits, replace the MFC.

Check Test	Check Test	CONNECT METER LEADS TO TERMINALS	THERMOSTAT CONTACTS	Reading should be:
A	Complete System	TP & TH	Closed	Check Test
B	Thermopile Output	TH/TP & TP	Open	> 325mV
C	System Resistance	TH/TP & TH	Closed	< 80m/ohms
D	Pilot Dropout	TH/TP & TP	Open	between 120 and 30mV